Complete Report for Unnamed faults near Terrill Mountains (Class A) No. 1310

Brief Report ||Partial Report

citation for this record: **Sawyer, T.L., compiler, 1999, Fault number 1310, Unnamed faults near Terrill Mountains, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, http://earthquakes.usgs.gov/regional/qfaults, accessed 06/11/2007 01:07 PM.**

Synopsis	This linear northwest-striking fault zone has a range-front fault bounding northeast side of low unnamed ridge along west margin of Long Valley that apparently steps eastward to range-front fault bounding northeast side of the Terrill Mountains and continues southeastward across broad alluvial drainage divide and along southwest margin of Red Ridge to a point approximately 4 km west-northwest of Pilot Cone Well; faults may be related to the Benton Springs fault zone [1320]. The faults are expressed by linear locally abrupt range fronts, lacking basal fault facets, and by lineaments along these fronts. Reconnaissance photogeologic mapping of these faults and regional geologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Refers to faults mapped by Slemmons (1968, unpublished Reno 1° X 2° sheet), Bell (1984 #105), Dohrenwend (1982 #2481; 1982 #2870), and Greene and others (1991 #3487) along east side of Terrill Mountains and Long Valley and west side of Red Ridge; these faults were included in Benton Springs fault system by dePolo (1998 #2845), but an approximately 12-km-wide gap lacking geomorphic evidence of surface faulting separates these faults from the Benton Springs fault zone [1320], proper. **Fault ID Comments:** Refers to WL28A and WL28B (Benton Springs fault system) of dePolo (1998 #2845).
County(s) and	CHURCHILL COUNTY, NEVADA

State(s)	LYON COUNTY, NEVADA MINERAL COUNTY, NEVADA
AMS sheet(s)	Reno Walker Lake
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault location are primarily based on 1:250,000-scale map of Bell (1984 #105); mapping is from photogeologic analysis of 1:40,000-scale low sun-angle aerial photography, supplemented with 1:12,000-scale aerial photography of selected areas, several low-altitude aerial reconnaissance flights, and field reconnaissance of major structural and stratigraphic relationships. Additional fault traces are based on 1:250,000-scale maps of Slemmons (1968, unpublished Reno map), Dohrenwend (1982 #2481), and Green and others (1991 #3487). Mapping by Slemmons (1968, unpublished Reno 1° X 2° sheet) is from analysis of 1:60,000-scale AMS photography transferred to mylar overlaid onto a 1:250,000-scale topographic map using proportional dividers. Mapping by Dohrenwend (1982 #2481) is from photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs.
Geologic setting	This linear northwest-striking fault zone has a range-front fault bounding northeast side of low unnamed ridge along west margin of Long Valley that apparently steps left (eastward) to range-front fault bounding northeast side of the Terrill Mountains and continues southeastward across broad alluvial drainage divide and along southwest margin of Red Ridge to a point approximately 4 km west-northwest of Pilot Cone Well (Slemmons, 1968, unpublished Reno 1° X 2° sheet; Dohrenwend, 1982 #2481; 1982 #2870; Bell, 1984 #105; Greene and others, 1991 #3487). dePolo (1998 #2845) considered these faults to be related to the Benton Springs fault system [1320].
Length (km)	28 km.
Average strike	N35°W
Sense of movement	Dextral *Comments:* Not studied in detail; dextral sense of movement is inferred from general knowledge of sense of movement on other northwest-striking faults in the region [1309] and [1320] and normal sense is inferred from topography; dePolo (1998 #2845) reported normal-oblique motion.
Dip	
Paleoseismology studies	
Geomorphic expression	The faults are expressed by linear locally abrupt range fronts and by lineaments along these fronts (Slemmons, 1968, unpublished Reno 1° X 2° sheet; Dohrenwend, 1982 #2481; Bell, 1984 #105). dePolo (1998 #2845) reported that there are no facets along the front of Red Ridge and Terrill Mountains.

Age of faulted surficial deposits	Quaternary. There is general agreement that faults in this zone displace and juxtapose undifferentiated Quaternary piedmont-slope deposits against bedrock (Slemmons, 1968, unpublished Reno 1° X 2° sheet; Dohrenwend, 1982 #2481; 1982 #2870; Bell, 1984 #105; Greene and others, 1991 #3487).
Historic earthquake	
Most recent prehistoric deformation	Quaternary (<1.6 Ma) *Comments:* Although timing of most recent event is not well constrained, a Quaternary time is indicated based on mapping by Slemmons (1968, unpublished Reno 1° X 2° sheet), Bell (1984 #105), Dohrenwend (1982 #2481; 1982 #2870), Green and others (1991 #3487).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate reflects a long-term average. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggests a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler (s)	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#105 Bell, J.W., 1984, Quaternary fault map of Nevada--Reno sheet: Nevada Bureau of Mines and Geology Map 79, 1 sheet, scale 1:250,000. #2481 Dohrenwend, J.C., 1982, Map showing late Cenozoic faults in the Walker Lake 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-D, 1 sheet, scale 1:250,000. #2870 Dohrenwend, J.C., 1982, Surficial geologic map of the Walker Lake 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-C, 1 sheet, scale 1:250,000. #3487 Greene, R.C., Stewart, J.H., John, D.A., Hardyman, R.F., Silberling, N.J., and Sorensen, M.L., 1991, Geologic map of the Reno 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2154-A, scale 1:250,000. #2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p.